

What is claimed is:

1. A composition comprising a plurality of cDNAs that are differentially expressed in brain disorders and selected from SEQ ID NOs:1-138 or their complements.

2. The composition of claim 1, wherein each of the cDNAs is downregulated at least two-fold and is selected from SEQ ID NOs:1-95.

3. The composition of claim 1, wherein each of the cDNAs is upregulated at least two-fold and is selected from SEQ ID NOs:96-138.

4. The composition of claim 1, wherein the brain disorder is Alzheimer's disease.

5. The composition of claim 1, wherein the brain disorder is selected from akathisia, amnesia, amyotrophic lateral sclerosis, ataxias, bipolar disorder, brain cancer, catatonia, cerebral palsy, cerebrovascular disease Creutzfeldt-Jakob disease, dementia, depression, Down's syndrome, tardive dyskinesia, dystonias, epilepsy, Huntington's disease, multiple sclerosis, muscular dystrophy, neuralgias, neurofibromatosis, neuropathies, Parkinson's disease, Pick's disease, retinitis pigmentosa, schizophrenia, seasonal affective disorder, senile dementia, stroke, and Tourette's syndrome.

6. The composition of claim 1, wherein the cDNAs are immobilized on a substrate.

7. A high throughput method for detecting differential expression of one or more cDNAs in a sample containing nucleic acids, the method comprising:

(a) hybridizing the substrate of claim 6 with nucleic acids of the sample, thereby forming one or more hybridization complexes;

(b) detecting the hybridization complexes; and

(c) comparing the hybridization complexes with those of a standard, wherein differences in the size and intensity of each hybridization complex indicates differential expression of cDNAs in the sample.

7. The method of claim 6, wherein the sample is from a subject with Alzheimer's disease and comparison with a standard defines an early, mid, or late stage of that disease.

8. A high throughput method of screening a library of molecules or compounds to identify a ligand which specifically binds a cDNA, the method comprising:

(a) combining the composition of claim 1 with the library of molecules or compounds under conditions to allow specific binding; and

(b) detecting specific binding between each cDNA and at least one molecule or compound, thereby identifying a ligand that specifically binds to each cDNA.

9. The method of claim 8 wherein the library is selected from DNA molecules, RNA molecules, mimetics, peptides, transcription factors, and regulatory proteins.

10. An isolated cDNA selected from SEQ ID NOs: 15, 16, 33, 34, 58, 59, 86, and 126 .

11. An expression vector containing the cDNA of claim 10.

12. A host cell containing the expression vector of claim 11.

13. A method for producing a protein, the method comprising the steps of:

(a) culturing the host cell of claim 12 under conditions for the expression of protein; and

(b) recovering the protein from the host cell culture.

14. A protein produced by the method of claim 13.

15. A high-throughput method for using a protein to screen a library of molecules or compounds to identify at least one ligand which specifically binds the protein, the method comprising:

(a) combining the protein or a portion thereof of claim 14 with the library of molecules or compounds under conditions to allow specific binding; and

(b) detecting specific binding between the protein and a molecule or compound, thereby identifying a ligand which specifically binds the protein.

16. The method of claim 15 wherein the library is selected from DNA molecules, RNA molecules, PNAs, mimetics, peptides, proteins, agonists, antagonists, antibodies or their fragments, immunoglobulins, inhibitors, drug compounds, and pharmaceutical agents.

17. A method of purifying a ligand from a sample, the method comprising:

a) combining the protein or a portion thereof of claim 14 with a sample under conditions to allow specific binding;

b) recovering the bound protein; and

c) separating the protein from the ligand, thereby obtaining purified ligand.

18. A pharmaceutical composition comprising the protein of claim 14.

19. A method of using a protein to produce an antibody, the method comprising:

a) immunizing an animal with the protein or an antigenically-effective portion thereof of claim 14 under conditions to elicit an antibody response;

b) isolating animal antibodies; and

c) screening the isolated antibodies with the protein, thereby identifying an antibody which specifically binds the protein.